METOC SERVICE
INSTRUMENT GROUND SCHOOL

HOURS OF OPERATION

OPEN 24-6.5 DAYS A YEAR

CONTACTING THE METOC OFFICE

IN PERSON: BLDG 153

YUMA METRO: 349.9

TELEPHONE: 269-2266 DUTY FORECASTER
269-2265 DUTY OBSERVER
269-2250 FAX
269-2382 CLIMO REQUEST
269-3230 WEATHER OIC

PAGE: http://www.yuma.usmc.mil/tenantunits/hhs/3ops/3w

PRODUCTS AVAILABLE

- OPARS's (minimum 2 hours notice)
- Cross Sections (HWD…. 2 hour minimum notice)
- EOTDA's (2 hour minimum notice)
- Astro/Climo data (5 working days minimum notice)
- Pre/Post Deployment Briefs (as requested)
- DD 175-1's (upon notification)
- 24,48,72 & 96 hr Forecasted outlook (issued and loca
  METOC Service Department Homepage)

OPARS

Optimum Path Aircraft Routing System

Purpose

To provide Flight Planning Service

Calculates:

- amount of fuel to load, to arrive with specified reserve
- maximum cargo for particular flight
- amount of fuel needed to “top off” for in-flight refueling
- maximum time on station
- mandatory over-water reporting stations
- fuel usage for specific route and/or altitude

ALTERNATE AIRFIELD

IFR/VFR

Destination Weather

- >or = 3000’ - 3 No Alternate Requi
- <3000’ - 3 Alternate Required

FLIGHT FORECAST FOLDERS

(sometimes called cross section or HWD package)

- Purpose; to give Aviators a vertical & horizontal view of weather conditions along the flight path.

- **NORMALLY FOR CROSS COUNTRY OR OVER WATER FLIGHTS!!**

FLIGHT FORECAST FOLDERS

INCLUDED IN THE FOLDER

- DD 175-1
- HWD (horizontal weather depiction)
- Upper Wind Charts

FLIGHT FORECAST FOLDERS

ADDITONAL ITEMS

- OPARS (when requested)
- Ditch Heading Chart (over water)
- Altimeter Setting Chart (over-water or under 1,500’)
- Any other operationally necessary charts.

WIND / THUNDERSTORMS

- Criteria - sustained wind at 15 knots or frequent gusts of 21 knots or greater are occurring or are forecast to occur.
- Warning - issued for the local area.

- Condition II - occurring or imminent within 25NM radius of the Air Station.

- Condition I - occurring or imminent within 10 NM radius of the Air Station.

WARNINGS & ADVISORIES

ISSUED BY THE
NATIONAL WEATHER SERVICE

SEVERE METOC WARNINGS

- Numbered Sequentially (001, 002, etc…)
- High Probability of Severe Weather Development

PILOTS MAY NOT FILE

into any area covered by a WW Bulletin UNLESS:

SEVERE METOC WARNINGS

- For Operational Necessity
- Emergencies
- Research Projects
- Weather Recon Flights
- Or one of the following conditions exist:
- Storm development has not progressed as Forecast
- And Aircraft Radar is Installed & Operative
- Or VMC can be Maintained in Positive Control Areas
- Or Aircraft can fly above existing or Developing Storms

WHAT IS THIS ?
AND
HOW DO I READ IT?

KNYL METAR 012255Z 00000KT 7SM BKN050 OVC120 17/13 A3015 RMK SLP216 T01720128;

KNYL RTD 012121 14009KT 9999 SCT030 BKN050 BKN150 OVC250 610306 542509 543406 QNH3009INS
TEMPO 2102 6000 -SHRA BKN030 OVC080
BECMG 0204 02006KT 9999 SCT015 BKN030 OVC080 QNH3012INS
TEMPO 0208 8000 -RA BKN015 OVC030
BECMG 1416 36012G22KT 9999 SCT010 BKN020 60000 50000 QNH3017INS
T03/11Z T16/20Z LAST TAF NO AMDS AFTER 0205 NEXT 0209

METAR OBSERVATIONS

A METAR OBSERVATION IS A CURRENT WEATHER OBSERVATION FOR A PARTICULAR STATION. THEY ARE, AT THE MINIMUM, TAKEN 10-15 MINUTES PRIOR TO EVERY HOUR.

WHEN SPECIAL WEATHER CRITERIA IS PRESENT, (I.E. THUNDERSTORMS PRECIPITATION, VISIBILITY REDUCERS,TORNADOES ETC…) AN OBSERVER WILL TAKE A SPECIAL OBSERVATION WHENEVER THE SPECIAL CRITERIA IS MET.

NAVMETOCCOMINST 3141.2

KNYL METAR 012255Z 00000KT 1SM BKN005 BKN050 OVC120 RMK AO2 PK WND 28045/17 VIS 1 FRQ TCU CB W MOV E

REMARKS –

Tower Visibility – visibility is recorded at the Control Tower.

Sfc Visibility – visibility is recorded at the surface.

Ceiling – Height above the ground of the lowest layer of clouds reported as broken or overcast, or the vertical visibility into an obscuration.

Sky Condition – Amount of sky covered by clouds or obscuring phenomena.

Wind – Direction from which the wind is blowing, and speed.

Variable Wind Direction – Direction of wind is variable.

Peak Wind – Highest instantaneous wind speed recorded in that hour.

Wind Shift – Time of beginning of wind shift.

Tower/Sfc Visibility – Prevailing visibility.

Variable Prevailing Visibility – Prevailing visibility is variable.

Sector Visibility – Visibility in a sector other than the prevailing visibility.

Lightning – Occurrence of lightning.

Beginning/Ending – Beginning or ending of precipitation.

Precipitation Amount – Amount of precipitation that has fallen since the last observation.

Sea-Level Pressure – Sea-level pressure in millibars at the time of observation.

Hourly Temperature – Temperature in degrees Celsius at the time of observation.

Hourly Dew Point – Dew point in degrees Celsius at the time of observation.

6-Hour Maximum Temperature – Highest temperature in degrees Celsius recorded during the 6-hour period.

6-Hour Minimum Temperature – Lowest temperature in degrees Celsius recorded during the 6-hour period.

24-Hour Maximum Temperature – Highest temperature in degrees Celsius recorded during the 24-hour period.

24-Hour Minimum Temperature – Lowest temperature in degrees Celsius recorded during the 24-hour period.

3-Hour Pressure Tendency – Net change in pressure in millibars during the 3-hour period preceding the observation.

Precipitation Type – Type of precipitation occurring at the time of observation.

Automated weather station recorded Occasional – Occurrence of maximum wind speed is 4 station or less apart. Frequent – Occurrence of maximum wind speed is 5 stations or more apart.

Cloud Direction – Direction of cloud movement = MOV E

Obscuration – Obscuration reduces visibility.

Variable Ceiling – Ceiling is variable.

Variable Sky Condition – Sky condition is variable.

Vertical Visibility – Vertical visibility into an obscuration.

Obscuration Type – Type of obscuration.

Sky Cover – Amount of sky covered by clouds or obscuring phenomena.

Cloud Type – Type of clouds.

Cloud Base – Height above the ground of the base of the clouds.

Cloud Top – Height above the ground of the top of the clouds.

In Cloud – Aircraft is moving through clouds.

Moving Not In Cloud – Aircraft is moving through clouds.

Cloud Direction – Direction of cloud movement = MOV E

Obscuration – Obscuration reduces visibility.

Variable Ceiling – Ceiling is variable.

Variable Sky Condition – Sky condition is variable.

Vertical Visibility – Vertical visibility into an obscuration.

Obscuration Type – Type of obscuration.

Sky Cover – Amount of sky covered by clouds or obscuring phenomena.

Cloud Type – Type of clouds.

Cloud Base – Height above the ground of the base of the clouds.

Cloud Top – Height above the ground of the top of the clouds.

In Cloud – Aircraft is moving through clouds.

Moving Not In Cloud – Aircraft is moving through clouds.

Cloud to Cloud = CC Continuous = CNS

Cloud to Air = CA

TERMINAL AERODOME FORECAST

A TERMINAL AERODOME FORECAST (TAF) IS A 24 HOUR FORECAST FOR A GIVEN LOCATION. IT IS UPDATED EVERY 6 SIX HOURS (AT 09Z, 15Z, 21Z, AND 03Z) OR WHENEVER FORECAST AMENDMENT CRITERIA IS MET.

KNYL RTD 012121 14009KT 9999 SCT030 BKN050 BKN150 OVC250 610306 542509 543406 QNH3009INS
TEMPO 2102 6000 -SHRA BKN030 OVC080
BECMG 0204 02006KT 9999 SCT015 BKN030 OVC080 QNH3012INS
TEMPO 0208 8000 -RA BKN015 OVC030
BECMG 1416 36012G22KT 9999 SCT010 BKN020 60000 50000 QNH3017INS
T03/11Z T16/20Z LAST TAF NO AMDS AFTER 0205 NEXT 0209

NAVMETOCCOMINST 3143.1F

TAF BREAKDOWN

NAVMETOCCOMINST 3143.1F

REMARKS
RTD – ROUTINE DELAY TRANSMISSION
COR – CORRECTION SENT
AMD – AMENDMENT SENT
6 = ICING GROUP
5 = TURBULENCE GROUP

WIND DIRECTION/SPEED

STATION ID.

DATE & FORECAST PERIOD

VISIBILITY IN METERS

FORECASTED SKY CONDITION

FORECASTED MINIMUM ALTIMETER

KNYL RTD 012121 14009KT 9999 SCT030 BKN050 BKN150 OVC250
610306 542509 543406 QNH3009INS
TEMPO 2102 6000 -SHRA BKN030 OVC080
BECMG 0204 02006KT 9999 SCT015 BKN030 OVC080 QNH3012INS
TEMPO 0208 8000 -RA BKN015 OVC030
BECMG 0810 36012KT 9999 SCT010 OVC020 QNH3015INS
BECMG 1416 36012G22KT 9999 SCT010 BKN020 600000 500000
QNH3017INS
TEMPO 1421 BKN010 OVC020
T03/11Z T16/20Z LAST TAF NO AMDS AFTER 0205 NEXT 0209

THE 1ST LINE OF THE TAF TELLS YOU THE PREDOMINANT CONDITIONS ANTICIPATED FOR THAT PERIOD, OR UNTIL THE NEXT BECMG GROUP.

A "TEMPO" GROUP INDICATES TEMPORARY FLUCTUATIONS TO THE FORECAST, ARE EXPECTED TO LAST LESS THAN 1 HOUR IN EACH INSTANCE AND LESS THAN HALF THE PERIOD THAT IS INDICATED.

A "BECMG" GROUP IS A CHANGE GROUP, WHICH DOESN'T NORMALLY EXCEED 4 HOURS, INDICATING A CHANGE IN PREDOMINANT CONDITIONS TO THE ELEMENTS LISTED.

DD-175-1 BREAKDOWN

PART II - ENROUTE DATA

14. FLT LEVEL	15. FLT LEVEL WINDS/TEMP
170/180	CAL - AND CSTL WTRS 27055/-11C

16. CLOUDS AT FLT LEVEL					17. MINIMUM VISIBILITY AT FLT LEVEL OUTSIDE CLOUDS												5 MILES DUE TO	
	YES		NO	X	IN AND OUT		SMOKE		DUST	X	HAZE		FOG		PRECIPITATION		NO OBSTRUCTION	

BANSHEE 88

PART I - MISSION / TAKEOFF DATA

1. DATE (YYMMDD)	2. A/C TYPE/NO.	3. DEP PT/ETD	4. RUNWAY TEMP	5. DEWPOINT	6. TEMP DEV	7. PRESSURE ALT	8. DENSITY ALT
10111	(3) F/A-18 R	KNYL/ 1200Z		N/R		FT	FT

9. SFC WIND	10. CLIMB WINDS	11. LOCAL WEATHER WARNING/ADVISORY	12. RCR
02008	34030	T1 SET VT:1000L	N/A

13. REMARKS/TAKEOFF ALTN FCST

NONE

X	SCATTERED 16 - 45% MT 400		SVR				MOD	X	X		HVY		X		
	NUMEROUS - MORE THAN 45%		EXTREME				SVR				SHWRS		X		
HAIL, SEVERE TURBULENCE & ICING, HEAVY PRECIPITATION, LIGHTNING & WIND SHEAR EXPECTED IN AND NEAR THUNDERSTORMS.			LEVELS SFC-120				LEVELS 100-200				FRZG				
LOCATION KNYL-KNKX			LOCATION KNYL-KNKX				LOCATION CAL-AZ AND CSTL WTRS				LOCATION KNYL-KNKX				

31. VOID TIME	32. EXTENDED TO	33. WEA RECONFIRMED AT	34. FORECASTER'S INIT	41. NAME OF PERSON RECEIVING BRIEFING
1230Z				

NAVMETOCCOMINST 3140.14D

PRESENT WEATHER DESCRIPTION TABLE

INTENSITY OR PROXIMITY	DESCRIPTOR	PRECIPITATION	OBSCURATION	OTHER
- = Light	MI = Shallow	DZ = Drizzle	BR = Mist	SS = Sandstorm
= Moderate	PR= Partial	RA = Rain	FG = Fog	DS = Dust storm
+ = Heavy	BC = Patches	SN = Snow	PY = Spray	PO = Dust/Sand Whirls
VC = Vicinity	DR = Low Drifting	SG = Snow grains	HZ = Haze	FC = Funnel Cloud Tornado Waterspout
	BL = Blowing	IC = Ice Crystals	SA = Sand	SQ = Squalls
	SH = Showers	PE = Ice Pellets	DU = Widespread dust	
	TS = Thunderstorm	GS = Small Hail	FU = Smoke	
	FZ =	GR =	VA =	

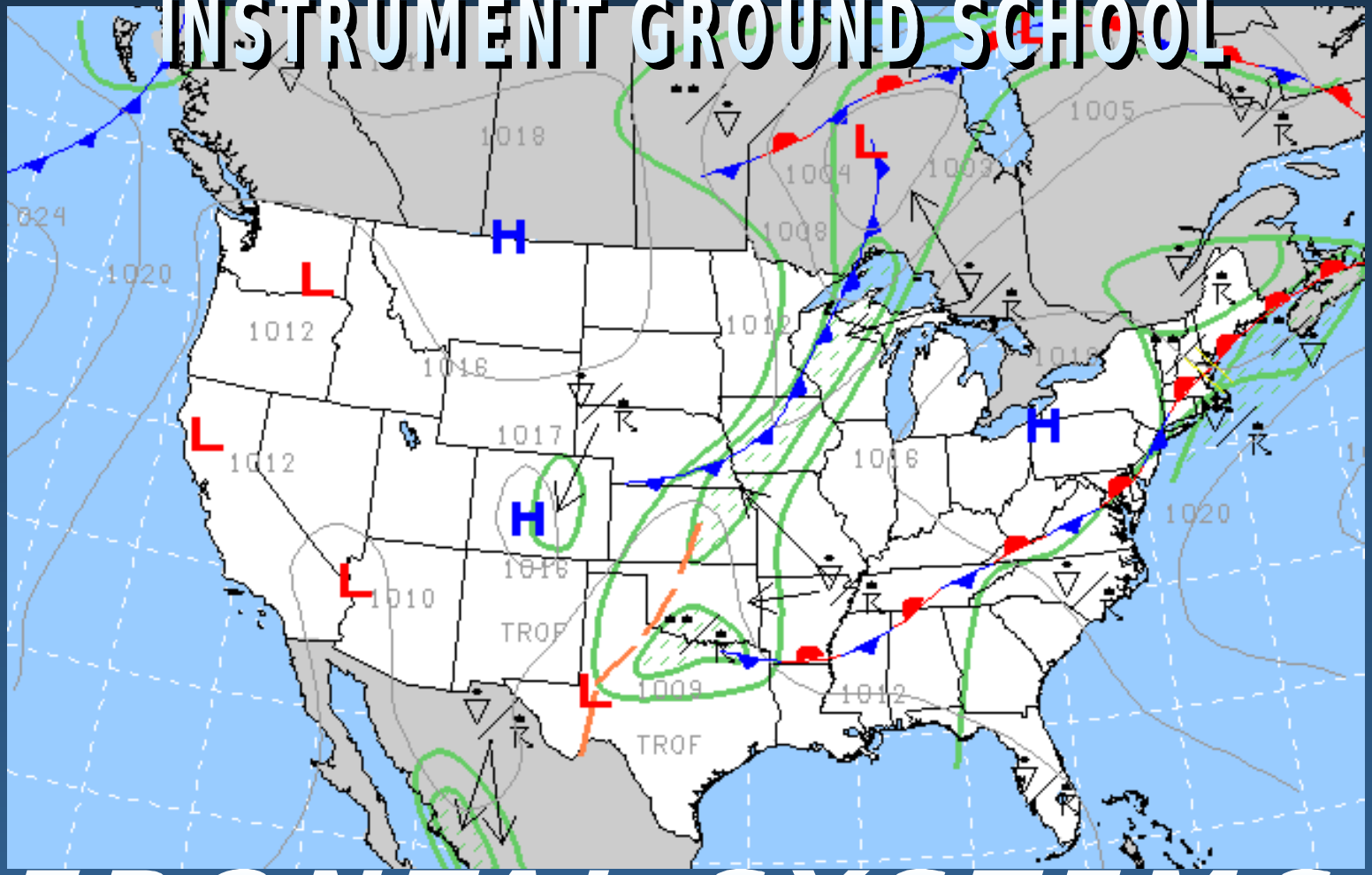
SKY CONDITIONS

CLEAR SKIES	SKC	0/8
TRACE	FEW	1/8-2/8
SCATTERED	SCT	3/8-4/8
BROKEN	BKN	5/8-7/8
OVERCAST	OVC	8/8
VERTICALLY OVERCAST	VV	8/8

- Sky Condition is measured in 1/8’s of the horizon

METOC SERVICE

INSTRUMENT GROUND SCHOOL



FRONTAL SYSTEMS

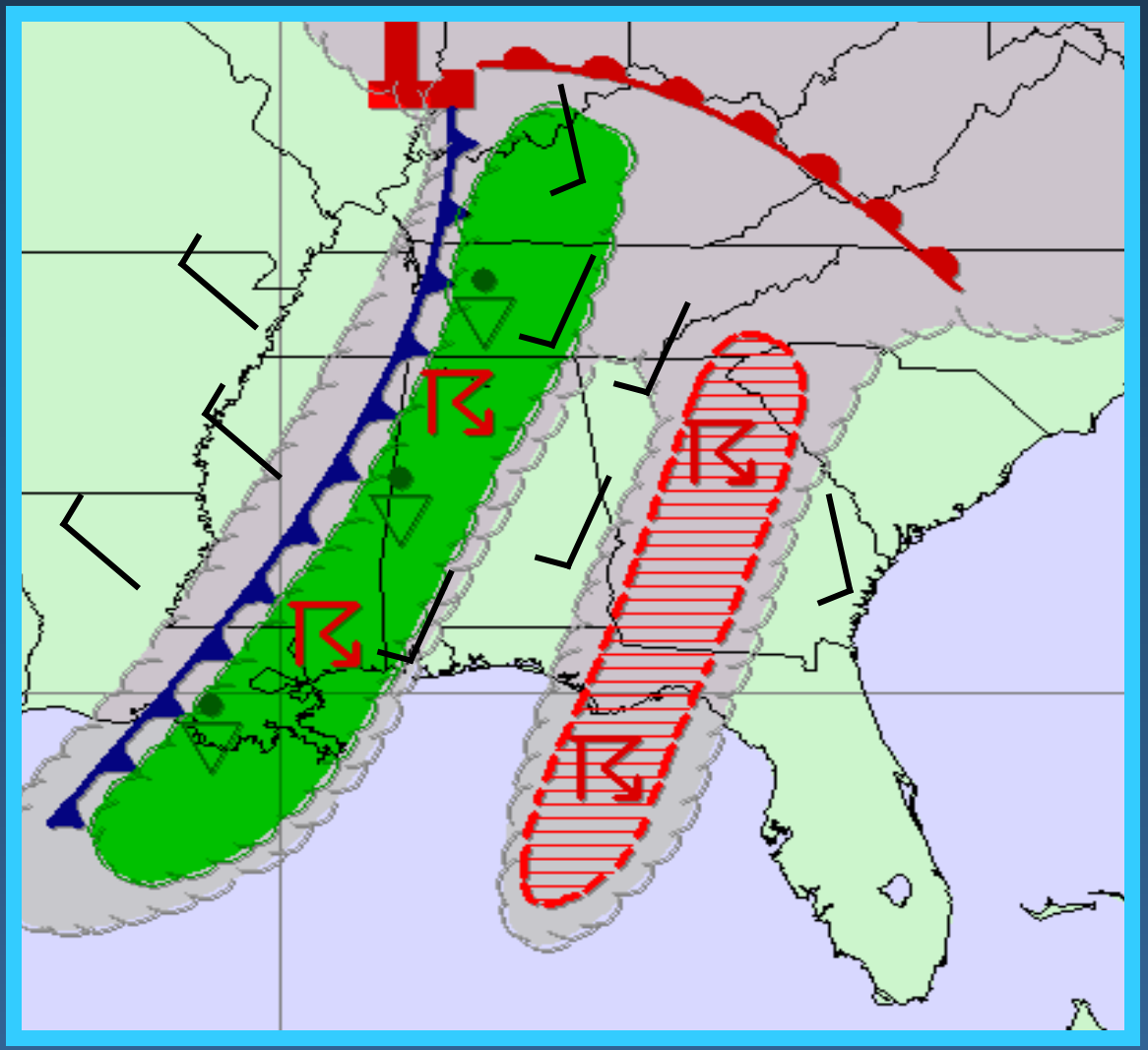
TERMINOLGY

- AIR MASS – A BODY OF AIR WITH SIMILAR HORI
  TEMPERATURE AND MOISTURE CHARACTERIST

  CONTINENTAL POLAR – COLD & DRY
  CONTINENTAL TROPICAL – WARM & DRY
  MARITIME TROPICAL – WARM &MOIST
  MARITIME POLAR- COLD & MOIST

- FRONT – A BOUNDRY BETWEEN TO AIR MASSES
- SQAULL LINE – A LINE OF INTENSE THUNDERST
  WHICH MAY DEVELOP 50-200 MILES AHEAD OF
  RAPIDLY ADVANCING COLD FRONT

FAST MOVING COLD FRONT

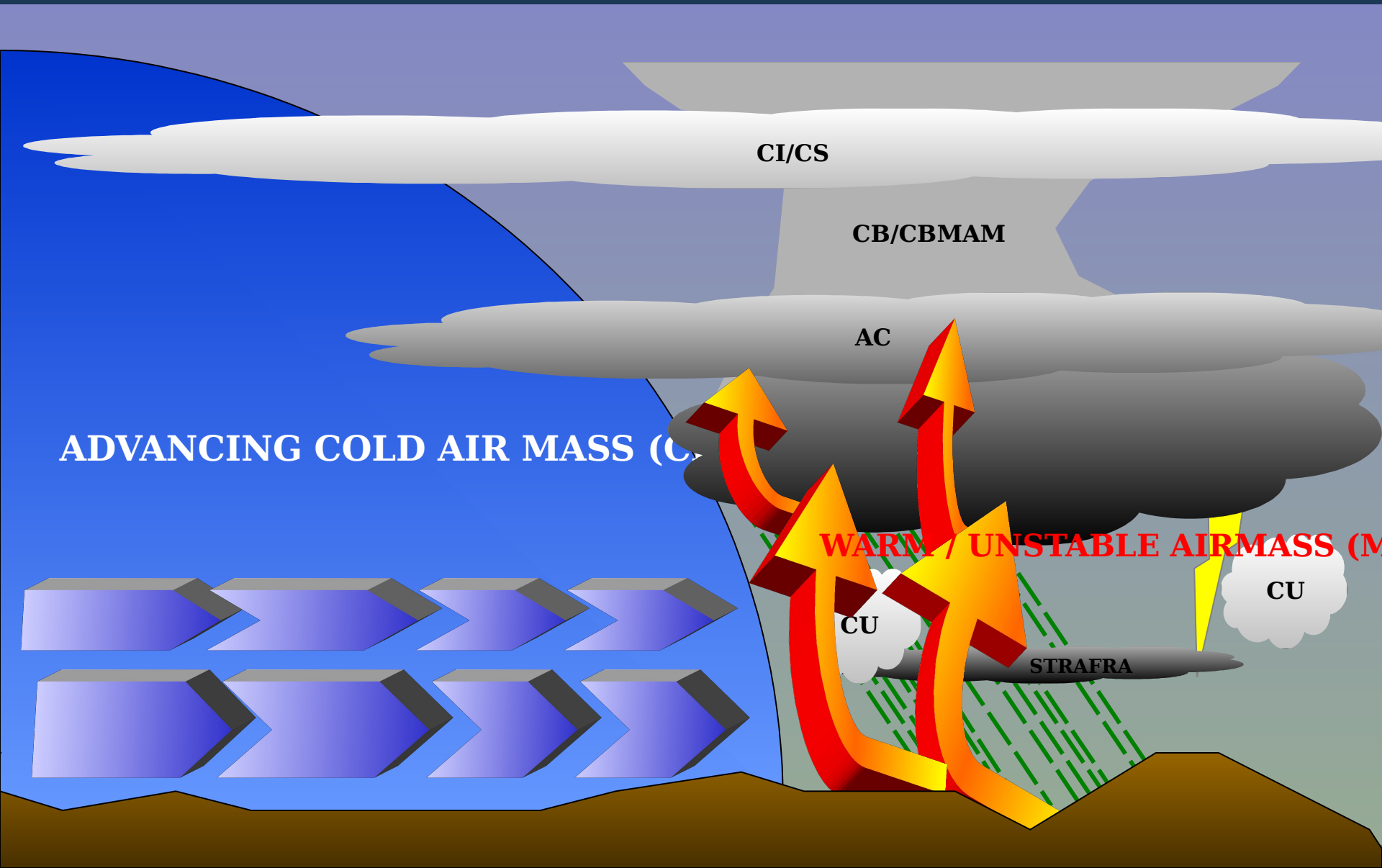


CHARACTERISTIC

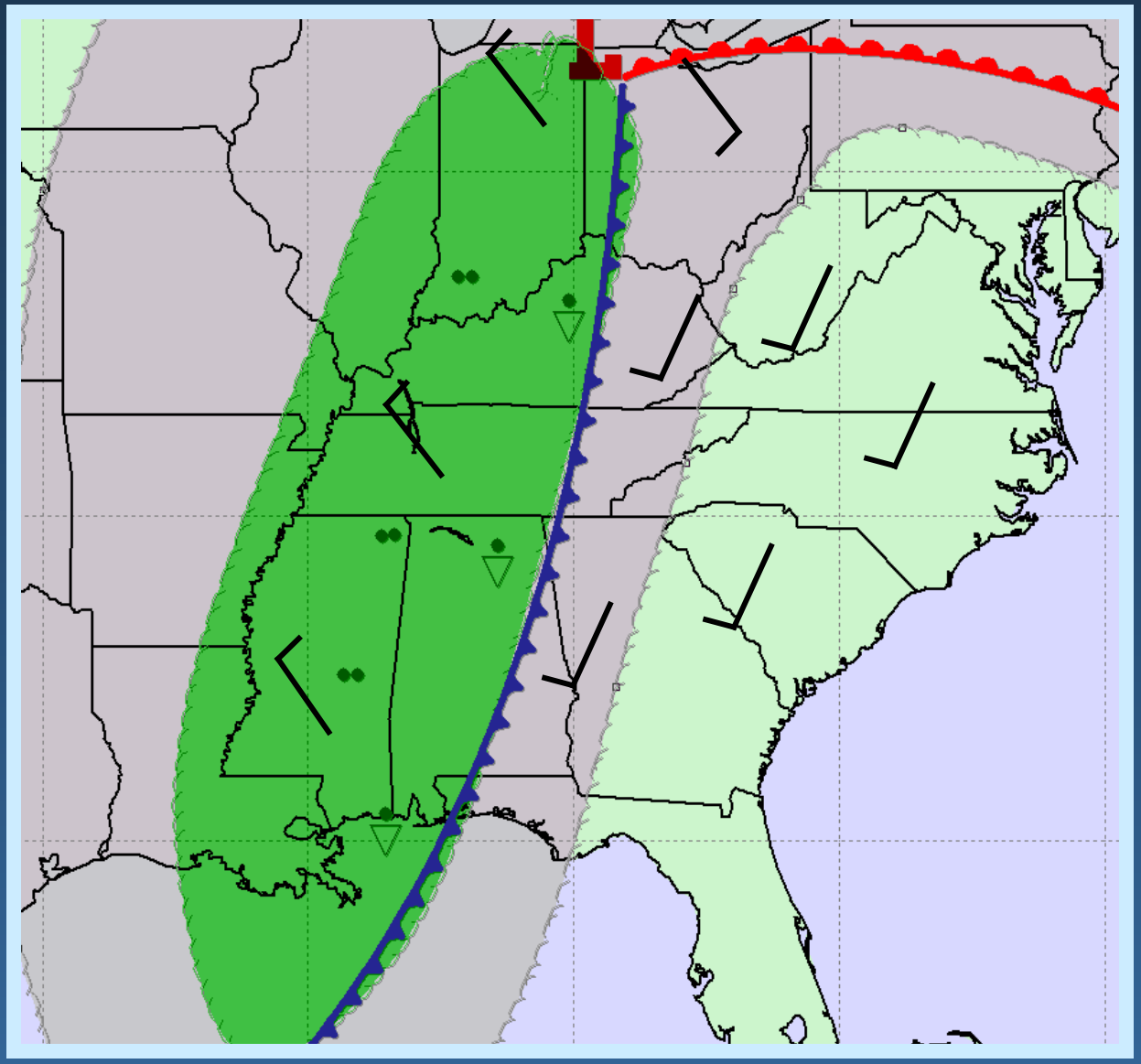
- WEATHER AT AND AHEA OF FRONT
- AVERAGE SPEED 25-30 KNOTS
- ACCOMPANIED BY A NARROW BAND OF WX
- SQUALL LINE MAY FOR 50 TO 200 MILES AHEA OF FRONT
- RAPID CLEARING OCCU AFTER FONTAL PASSAG
- ASSOCIATED WITH CUMULIFORM TYPE CLOUDINESS AND SHOWERY PRECIPITATI GENERALLY CONVECTIV

COLD FRONT

(FAST MOVING/IN -ACTIVE)



SLOW MOVING COLD FRONT



CHARACTERISTIC

- WEATHER AT AND BEHIND
- AVERAGE SPEED 15-20 KTS
- WIDE BAND OF WEATHER

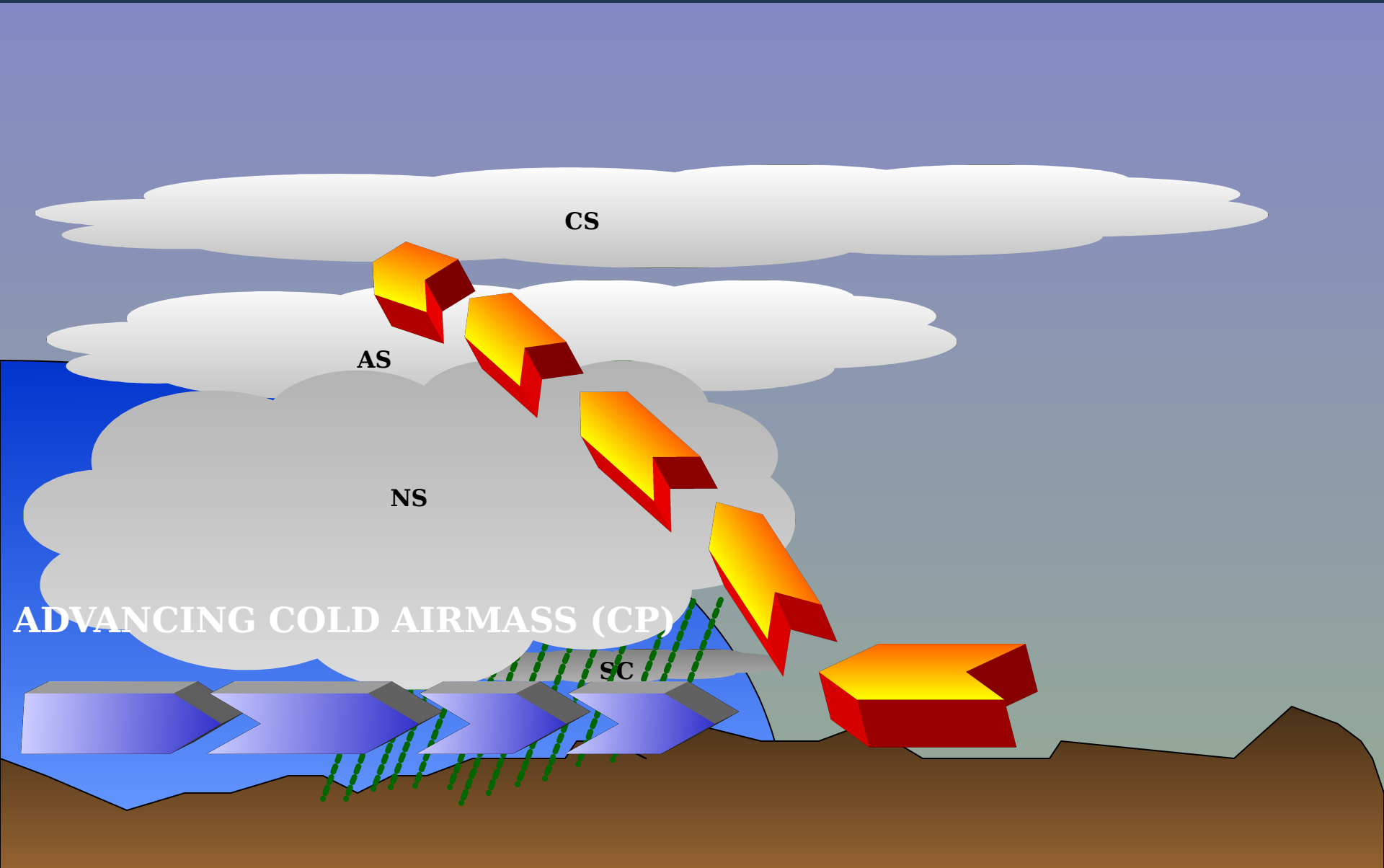
  AND CLOUDINESS
- UPPER LEVEL WINDS ARE

  PARALLEL
- DEW POINT SLOWLY

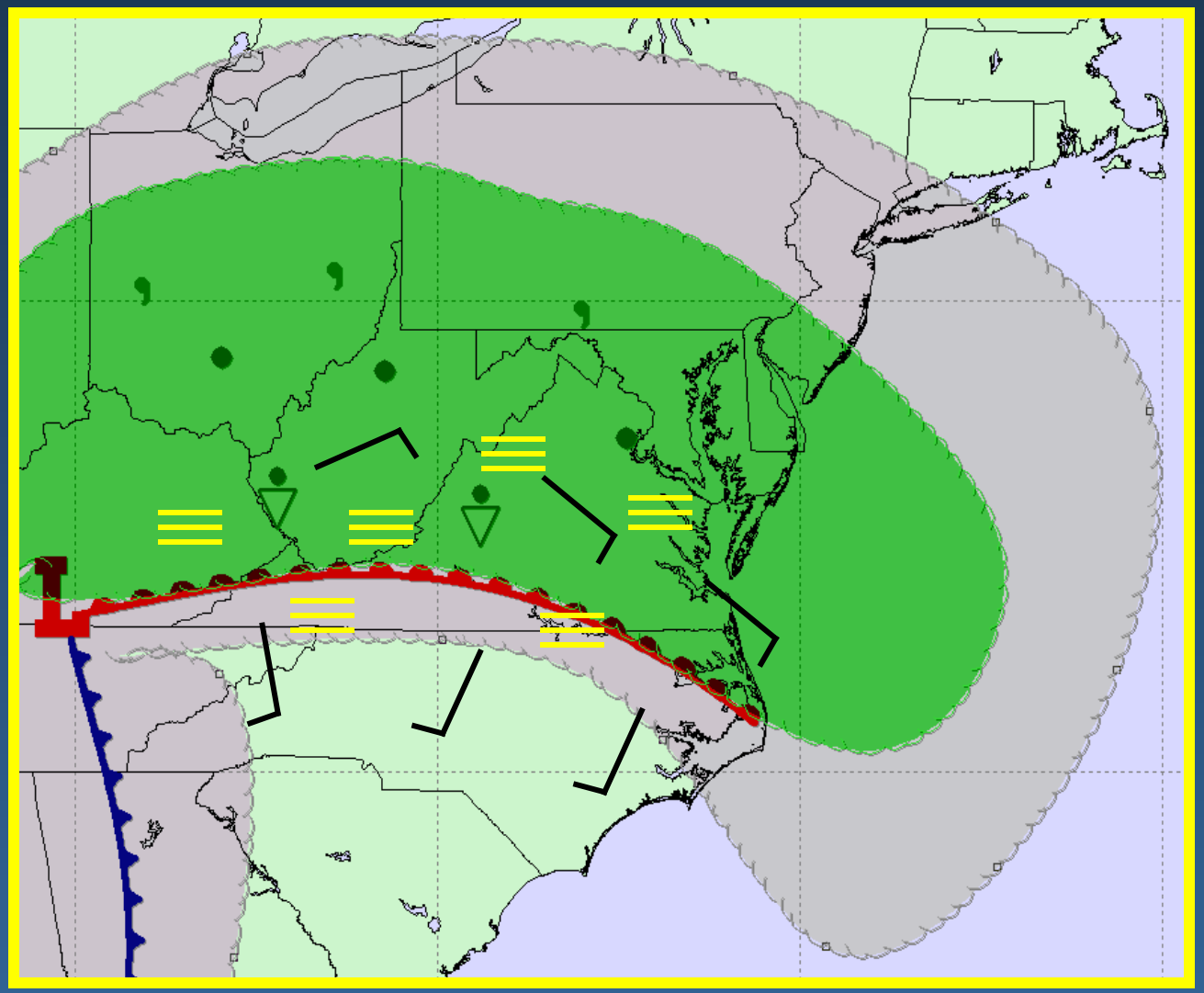
  DECREASES AFTER FROPA
- SHALLOW FRONTAL SLOPE

COLD FRONT

(SLOW MOVING/ACTIVE)



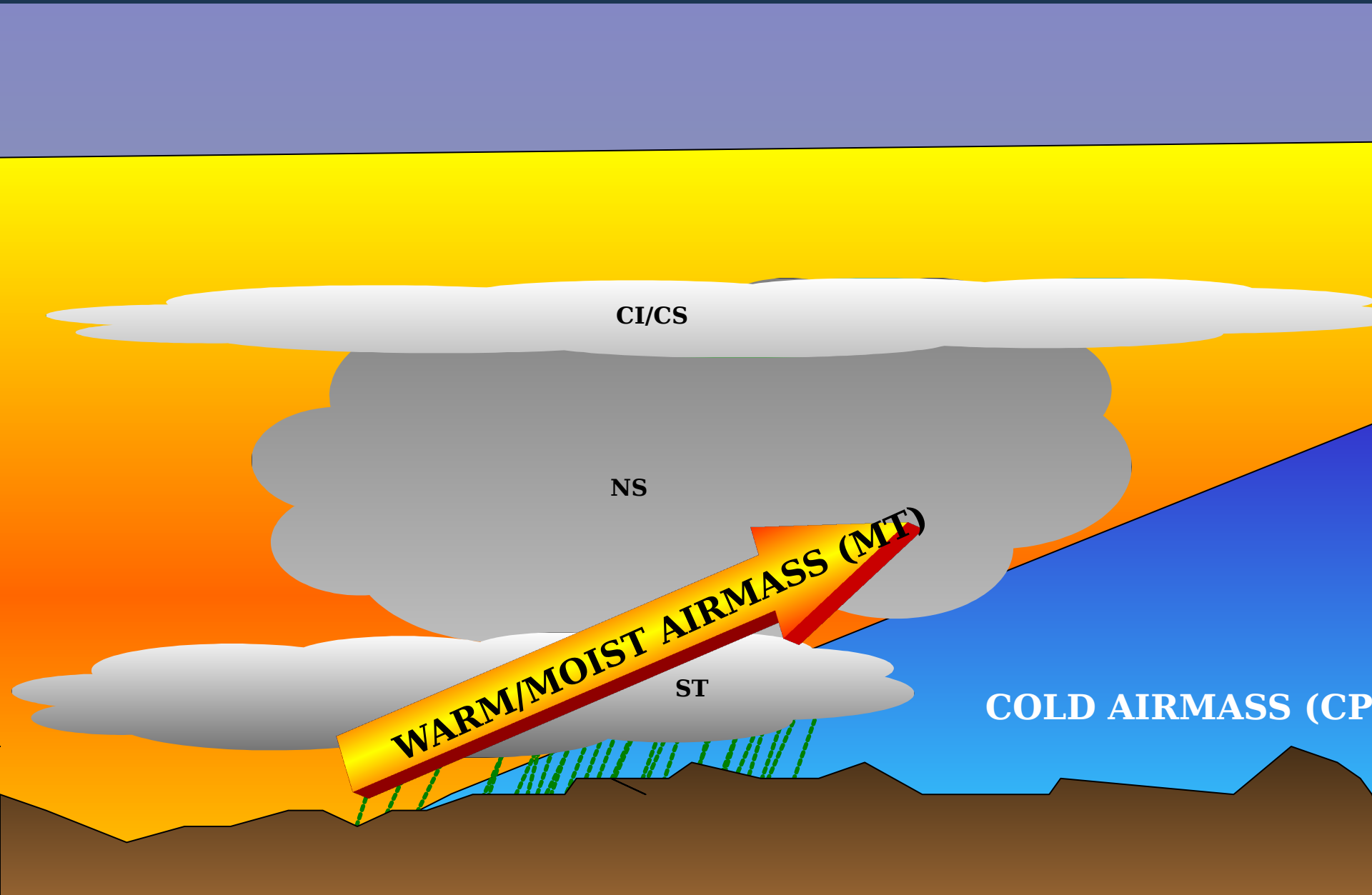
WARM FRONTS



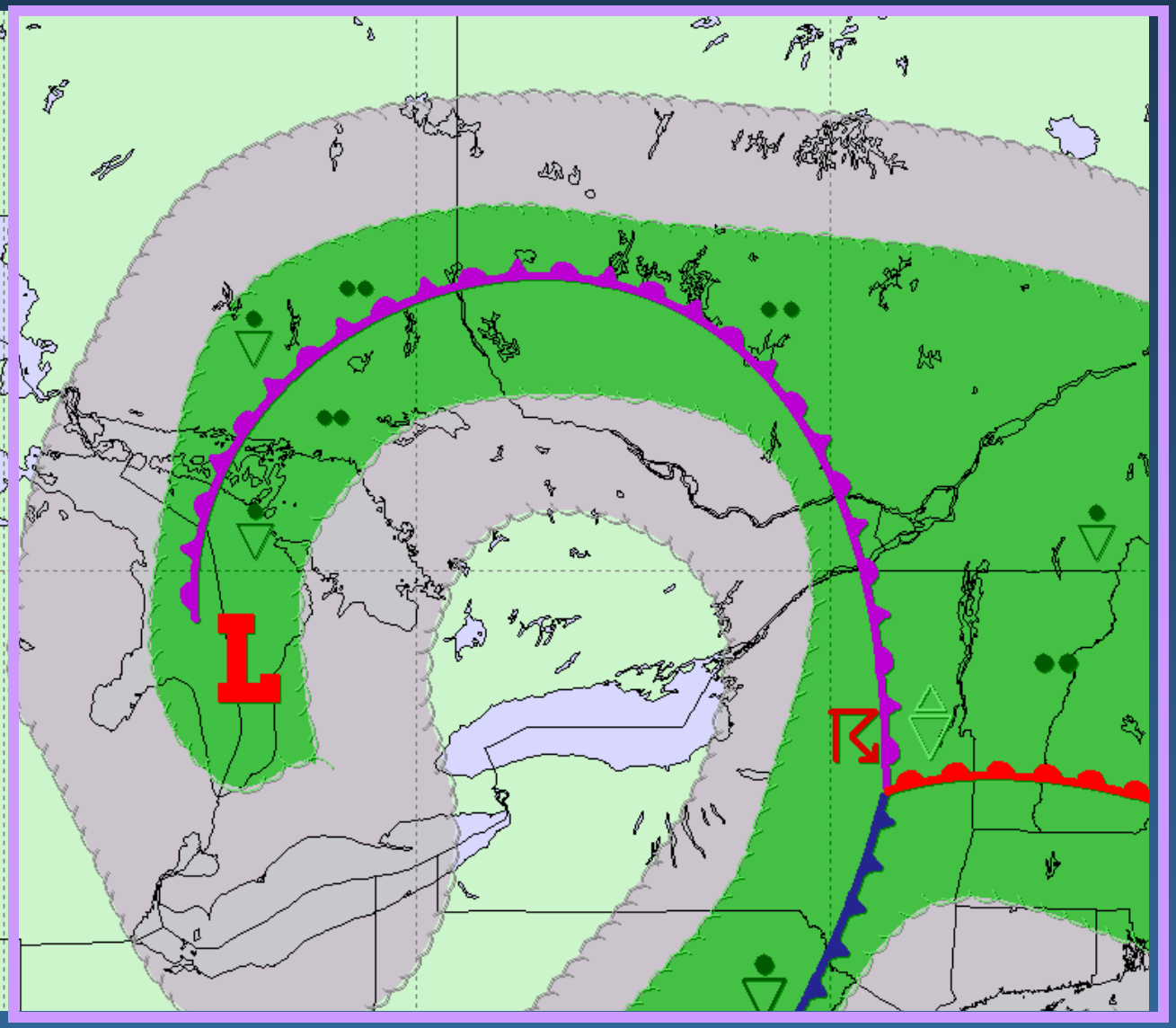
CHARACTERISTICS

- CLOUDINESS GENERALLY EXTENDS 400-600 MILES AHEAD OF SURFACE FRONT
- "OVERUNNING" IS CAUSE OF WEATHER & CLOUDS
- STRATIFORM CLOUDINESS WITH WIDESPREAD RAIN AND DRIZZLE (ISOLATED SHRA POSSIBLE)
- DEW POINTS INCREASE WITH FROPA

WARM FRONT



OCCLUDED FRONTS

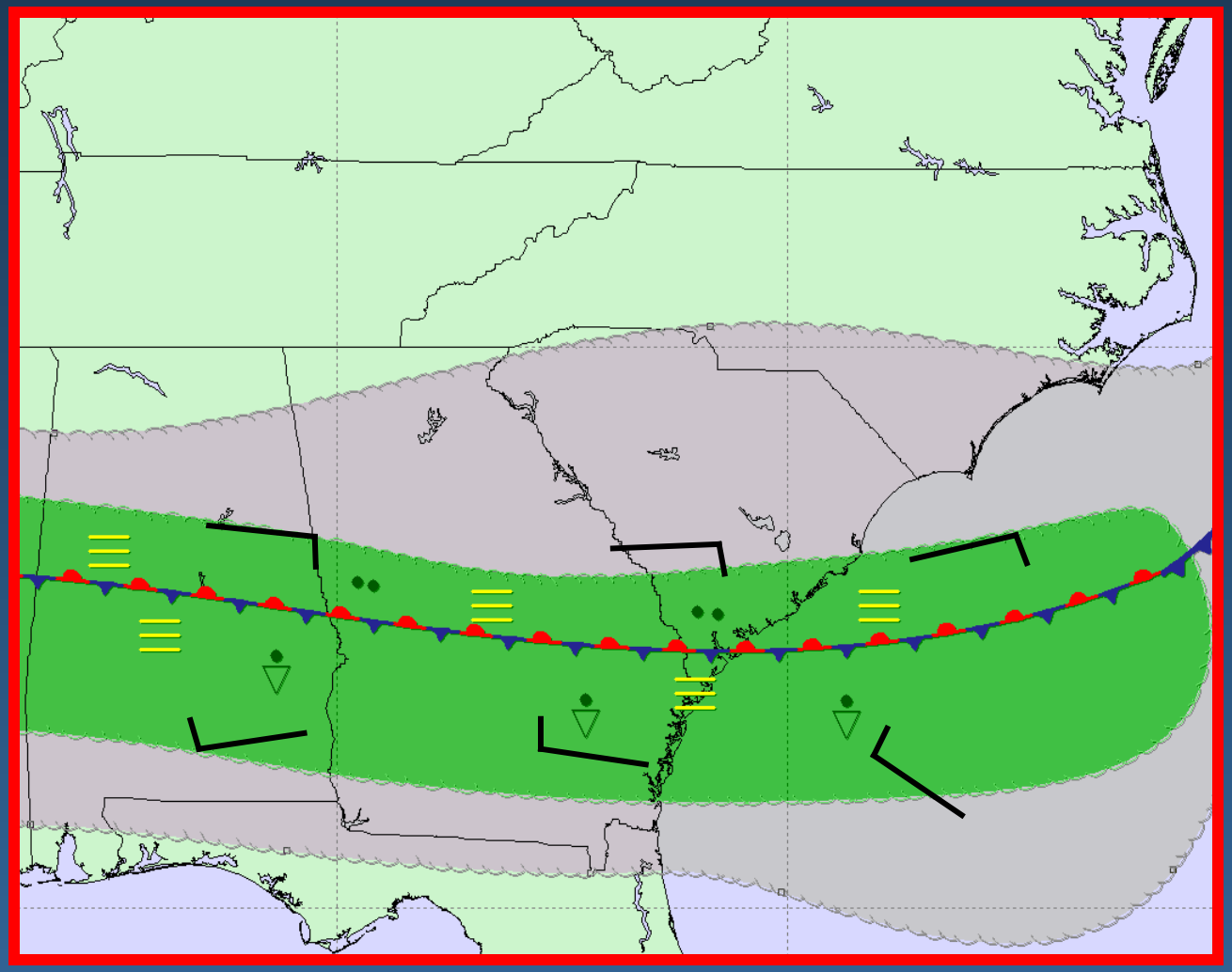


CHARACTERISTICS

- ASSOCIATED WITH MATU LOW PRESSURE SYSTEM
- COMMONLY OCCUR ON T COAST OF CONTINENTS
- CYCLOGENESIS FREQUEN TAKES PLACE AT APEX (TRIPLE POINT LOW)
- MOST VIOLENT WEATHER OCCURS AT THE TRIPLE POINT
-

_

STATIONARY FRONTS



CHARCTERISTICS

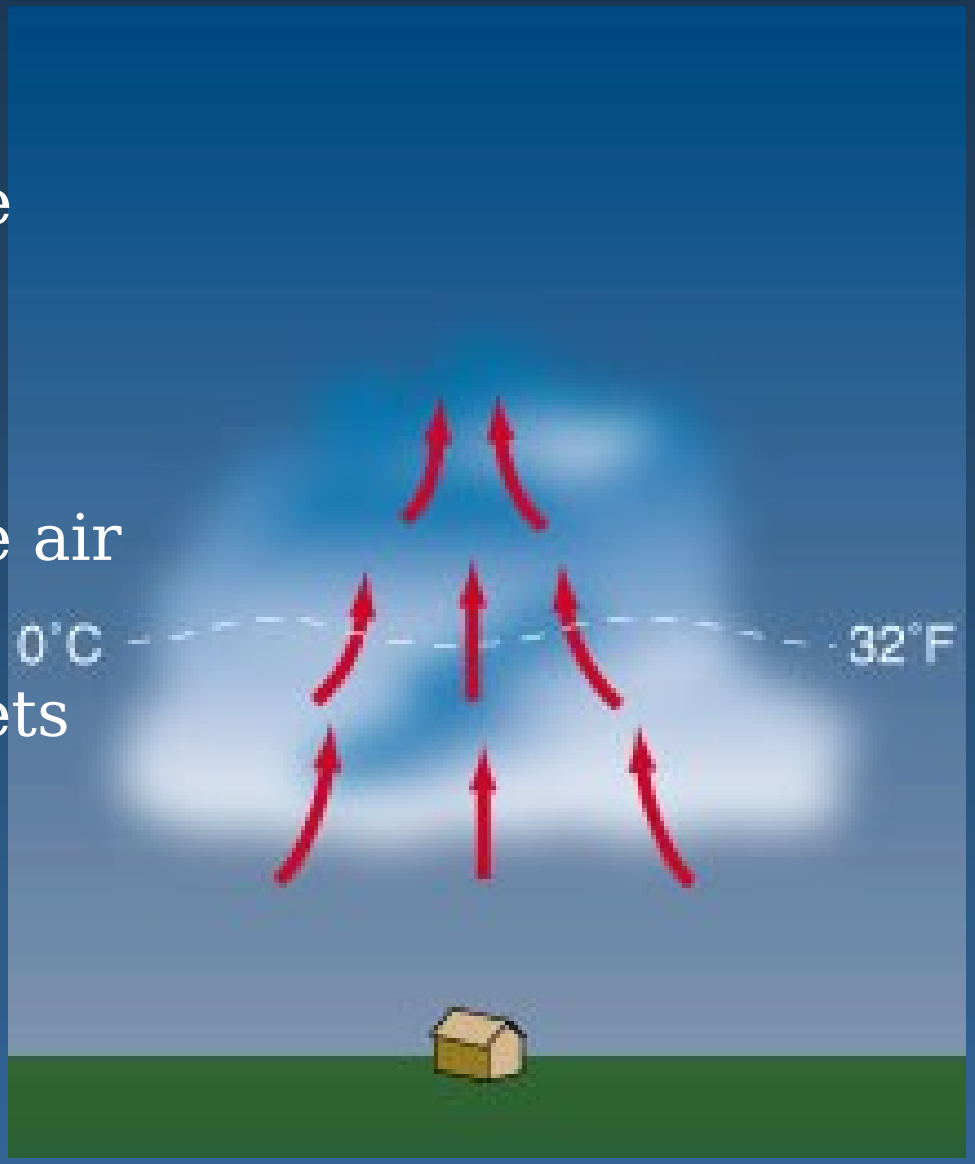
- EXIBITS LITTLE TO NO MOVEMENT (USUALLY 5 KNOTS OR LESS)
- STRATIFORM CLOUDINES AND RAIN ON COLD AIR S
- CUMULIFORM CLOUDINE AND SHOWERS ON WARM AIR SIDE
- SURFACE WINDS PARALL FRONTAL BOUNDRY
- MAY AFFECT A REGION F 48-72 HOURS
- COMMONLY OCCURS WH CP AIRMASS BECOMES MOTIFIED

QUESTIONS ??

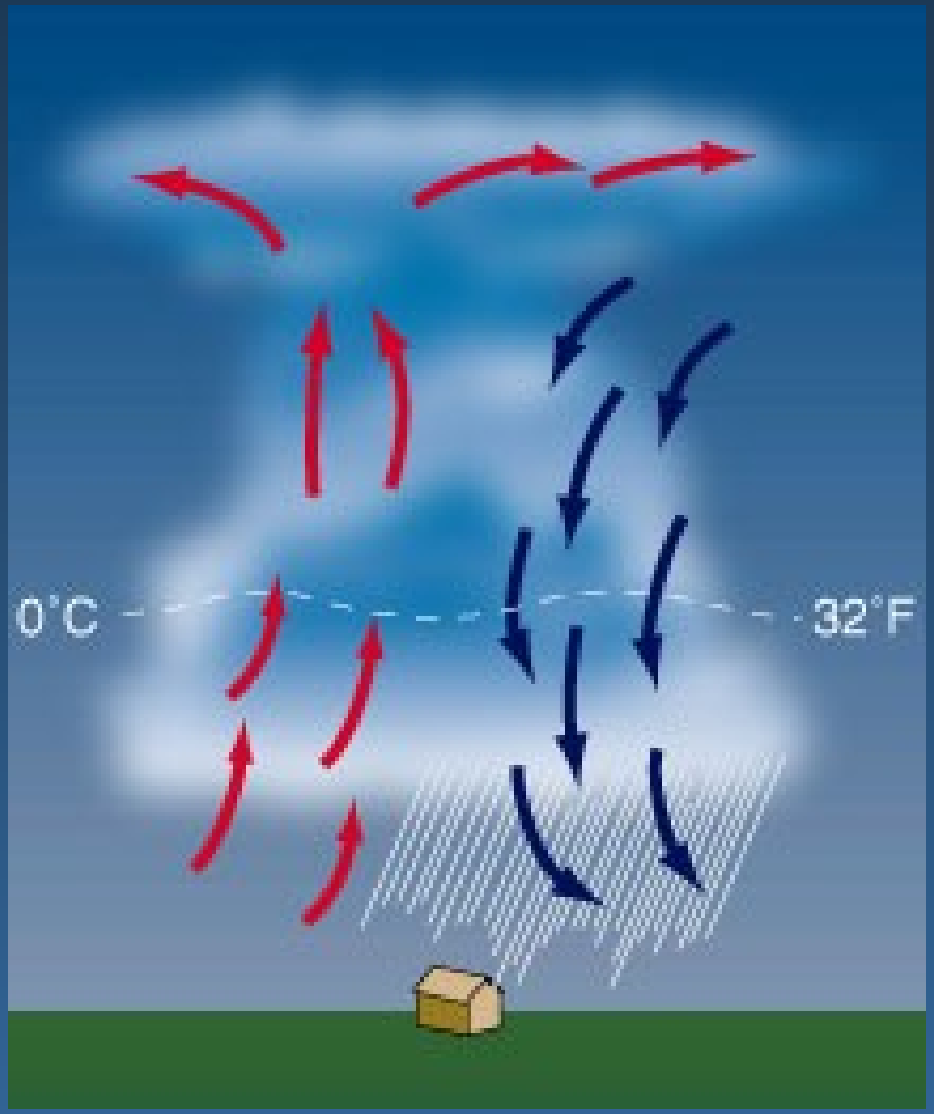
STAGES OF A THUNDERSTORM

Cumulus Stage

- Starts with a warm plume of rising air.
- The updraft velocity increases with height.
- Entrainment pulls outside air into the cloud.
- Supercooled water droplets freezing level are carried far above



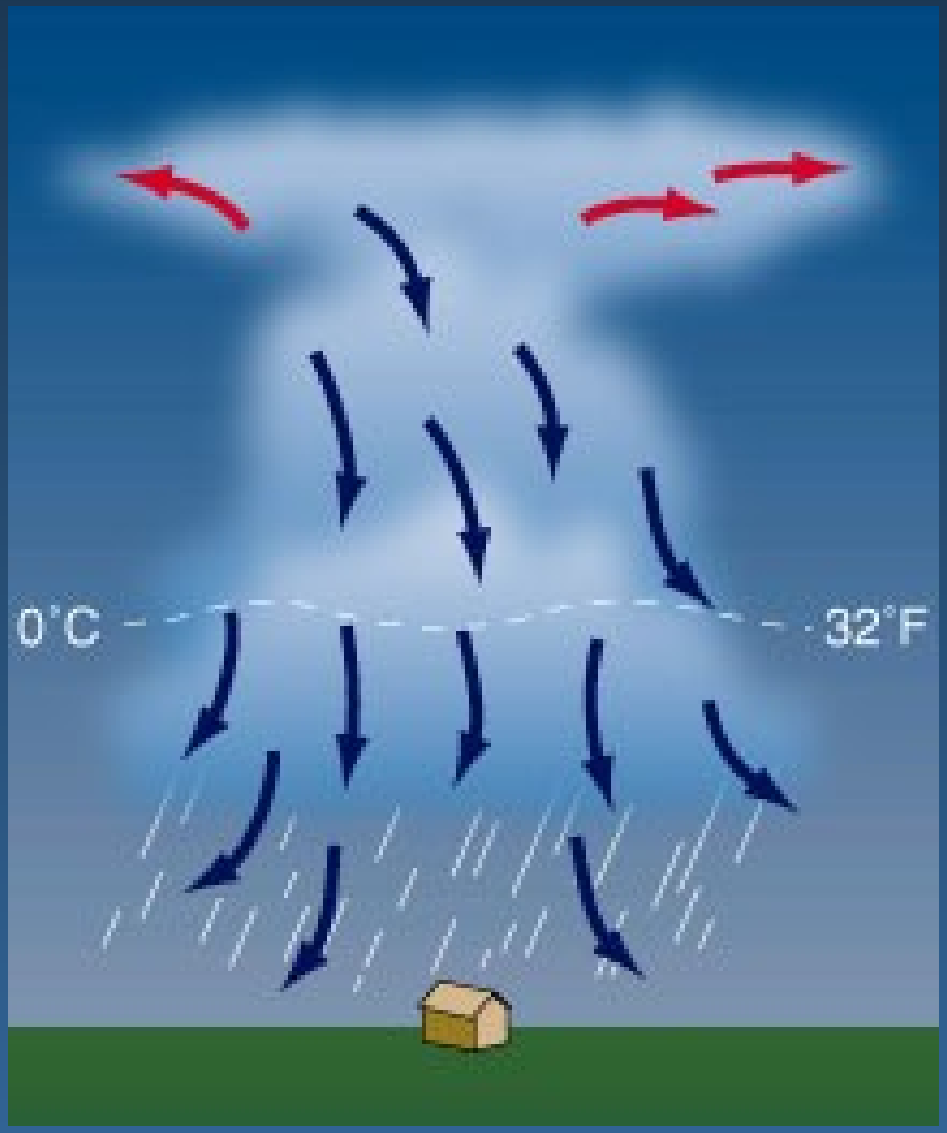
STAGES OF A THUNDERSTORM



Mature Stage:

- The heaviest rains occur.
- The downdraft is initiated by frictional drag of the raindrops.
- Evaporative cooling leads to negative buoyancy.
- The top of the cloud approaches tropopause and
- forms anvil top

STAGES OF A THUNDERSTORM



Dissipating Stage:

- The downdraft takes over entire cloud.
- The storm deprives itself of supersaturated updraft
- Precipitation decreases.
- The cloud evaporates.

ICING
&
TURBULENCE

OVERVIEW:

IDENTIFY FORMATION, TYPES, AND INTENSITES OF TURBULENCE AND ICING AND THEIR AFFECT ON AIRCRAFT.

ICING
Intensities

Trace - Icing first becomes perceptible as trace icing. The is slightly greater than the sublimation rate. Trace icing i hazardous to operations unless it persists for longer than

Light - Icing condition persists for over 1-hour. Accumulation begins to create a problem for the aircraft. Occasional us anti-icing equipment removes and/or prevents accumulat

Moderate - The rate of accumulation causes even short encoun icing to be potentially hazardous. The use of deicing/ equipment is necessary.

Severe - The rate of accumulation is so strong that deicing/ant fails to reduce or control the hazard. Immediate diversio

AIRCRAFT ICING

**STRUCTURAL ICING INTERFERES WITH AIRCRAFT
ONTROL BY INCREASING DRAG AND WEIGHT WHIL
DECREASING LIFT.**

**INE-SYSTEMS ICING REDUCES THE EFFECTIVE POW
OF AIRCRAFT ENGINES.**

ICING
Types

AIRCRAFT STRUCTURAL ICING CONSISTS OF 3 TYP

1. **CLEAR**
2. **RIME**
3. **FROST**

- **MIXTURES OF CLEAR AND RIME ARE COMMON (MIXED)**

- **THE TYPE OF ICING THAT OCCURS IS DEPENDANT UPON TH TEMPERATURE AND WATER DROPLET SIZE**

ICING
Types

CLEAR ICING –

GLOSSY, CLEAR OR TRANSLUCENT ICE
BY RELATIVELY SLOW FREEZING OF LARGE
SUPERCOOLED DROPLETS. OCCURS MOST
FREQUENTLY WITHIN STRATUS CLOU
TEMPERATURES BETWEEN –8ºC and –

- **POTENTIALLY THE MOST DANGEROUS TYPE OF ICING .**
- **THE DROPLETS SPREAD OUT OVER THE AIRFRAME SURF BEFORE COMPLETELY FREEZING.**
- **SINCE IT IS TRANSPARENT, THE ICING MAY GO UNDETEC**

ICING
Types

RIME ICING –

A MILKY, OPAQUE, AND GRANU
DEPOSIT WITH A ROUGH SURFACE

- **CAN FORM IN STRATIFORM CLOUDS FROM 0°C TO –22°C, BUT IT OCCURS MOST FREQUENTLY -8°C TO -22°C**

ICING
Types

FROST ICING –

FROST IS A LIGHT, FEATHERY DEPOSIT OF ICE CRYSTALS THAT FORM WHEN WATER VAPOR CONTACTS A SUBFREEZING SURFACE.

FROST CAN OCCUR ON AN AIRCRAFT IN FLIGHT, ON THE GROUND, AND ON THE UPPER SURFACES OF PARKED AIRCRAFT DURING A CLEAR NIGHT WITH SUBFREEZING TEMPERATURES.

IT ALSO AFFECTS THE AIRCRAFT'S LIFT-TO-DRAG RATIO AND CAN BE HAZARDOUS DURING TAKE-OF

TURBULENCE is caused by

orupt, irregular movements of the air that create shar
uick updrafts and downdrafts. These up and downdraf
occur in combinations and move aircraft unexpectedly

Two basic types of atmospheric conditions that cau
to occur are : Thermal conditions and Mechanical

TURBULENCE
LEVELS OF INTENSITY

1. LIGHT TURBULENCE – The aircraft experiences erratic changes in attitude and/or altitude, caused variation of wind speed of 5-14 knots with a vertica of 5-19 feet per second.

Light (LGT)

Areas of consideration:

1. In and near Cumulus clouds.

2. At low altitudes in rough terrain when winds exceed 15 knots.

3. In mountainous areas, even with light winds.

4. Near the tropopause

TURBULENCE
LEVELS OF INTENSITY

2. Moderate Turbulence – The aircraft experiences changes in attitude and/or altitude, but the pilot r positive control at all times. The aircraft encounte variations in airspeed of 15-24 knots; vertical gus 20-35 ft/second.

1. In and around Towering Cumulus and Cumulonimbus.
2. At low altitudes in rough terrain, when the surface winds exceed 25 knots.
3. When wind components of 25 to over 50 knots exist near the ridge level, turbulence may be seen 150-300 miles on the leeward side of the mountain.
4. Near Jet Stream altitude, and about 50-100 miles on the cold-air side of the jet

TURBULENCE
LEVELS OF INTENSITY

3. Severe Turbulence – The aircraft experiences abru attitude and/or altitude and may be out of the pilot's periods. The aircraft encounters large variations is a than or equal to 25 knots and the vertical gust veloci feet per second.

1. **In and near mature Thunderstorms.**
2. **Near Jet Stream altitude, and about 50-100 miles on the cold-air side of the jet core.**
3. **In mountain waves, 50 miles on leeward side, with winds 25-50 knots.**
4. **Up to 150 miles , leeward side of mountain, and**

TURBULENCE
LEVELS OF INTENSITY

4. Extreme Turbulence – The aircraft is violently tos
Is practically impossible to control. Structural dama
Rapid fluctuations in airspeed are the same as Seve
(greater than or equal to 25 knots) and the vertical
Greater than or equal to 50 feet per second.

Though Extreme Turbulence is rarely encountered,
Found in the strongest forms of convection and win

The two most frequent locations are:

1. **In mountain waves, in or near the Rote**
2. **In severe thunderstorms, especially in**
   squall lines.

AIRMETS

SIGMETS

CONVECTIVE SIGMETS

WHY?

WHEN?

WHERE?

WHAT?

HOW?

AIRMETS

(Airmen’s Meteorological Advisories)

An AIRMET (AIRman's METeorological Information) advises of weather that maybe hazardous, other than convective activity, to single engine, other light aircraft, and Visual Flight Rule (VFR) pilots. However, operators of large aircraft may also be concerned with these phenomena. The items covered are:

AIRMET Sierra (IFR):

- Ceilings less than 1000 feet and/or visibility less than 3 miles affecti of the area at one time.
- Extensive mountain obscuration

AIRMET Tango (Turbulence):

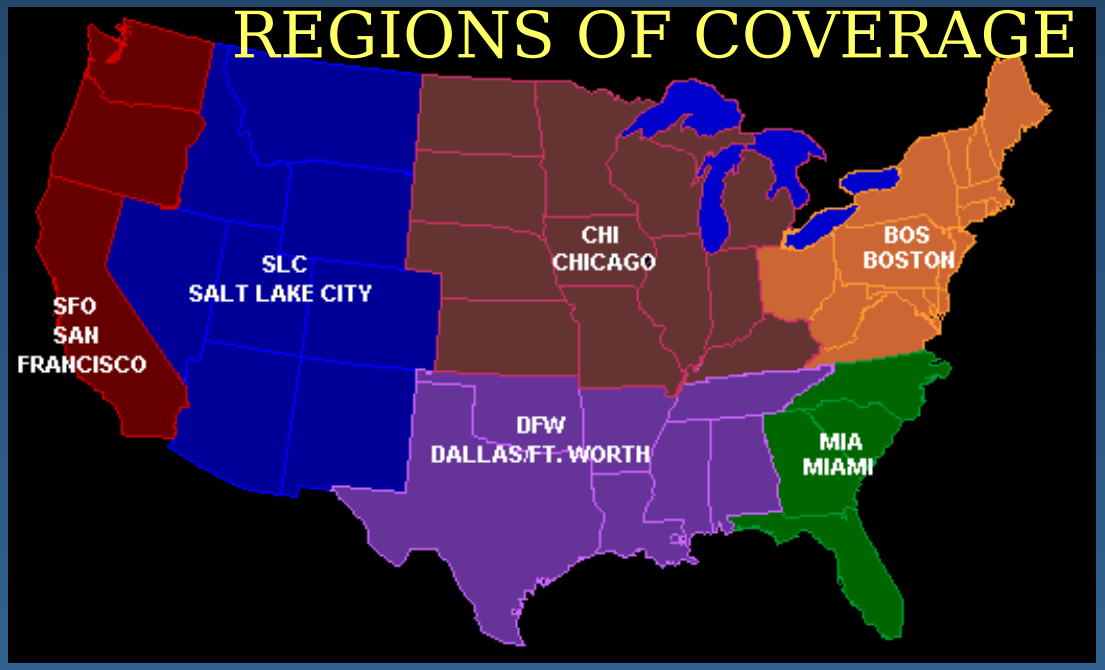
- Moderate turbulence
- Sustained surface winds of 30 knots or more at the surface

AIRMET Zulu (Icing):

- Moderate icing
- Freezing levels

These AIRMET items are considered to be *widespread* because they m
or be forecast to affect an area of at least 3000 square miles at any on
if the total area to be affected during the forecast period is very large,
only a small portion of this total area would be affected at any one tim

AIRMETs are routinely issued for 6 hour periods beginning at 0145 UT
Daylight Time and at 0245 UTC during Central Standard Time. AIRME
amended as necessary due to changing weather conditions or issuanc
of a SIGMET.



SIGMETS

(Significant Meteorological Advisories)

METS are in-flight advisories that warn of internationally specified weat
na of an intensity and/or extent that concerns pilots and operators of al

SIGMETS ARE ISSUED FOR THE FOLLOWING:

- **Severe icing**
- **Severe or extreme turbulence**
- **Dust storms and sandstorms lowering visibilities to less tha**
- **Volcanic Ash**

These SIGMET items are considered to be *widespread* because they
or be forecast to affect an area of at least 3000 square miles at any o
However, if the total area to be affect during the forecast period is ve
be that only a small portion of this total area would be affected at any

SIGMETS are issued for 6 hour periods for conditions associated wit
and 4 hours for all other events. If conditions persist beyond the fore
the SIGMET is updated and reissued.

CONVECTIVE SIGMETS

(Convective Significant Meteorological)

Convective SIGMETS are issued, in the United States, for any of th

- Severe Thunderstorm due to:
  - ✓Surface winds greater than or equal to 50 knots
  - ✓Hail at the surface greater than or equal to ¾ inches i
  - ✓Tornadoes
- Embedded Thunderstorms
- Line of Thunderstorms
- Thunderstorms greater than or equal to VIP level 4 affecting of an area at least 3,000 square miles.

- Any Convective SIGMET implies severe or greater turbulence, sev low-level wind shear.
- A Convective SIGMET may be issued for any convective situation w forecaster feels is hazardous to all categories of aircraft.

**tive SIGMETS are issued for the Eastern (E), Central ©, and West
tates. The areas do overlap to cover most cases when phenomena
The boundaries.**